Appendix A

Evaluation Factors and Sub-factors for Phase 2A

Phase 2: Preliminary List of Sub-factors to be used in the Evaluation

Factors and Sub-factors	Definition	Measurement
1.0 Traffic and Transportation		
1. Truck Traffic	Estimates the forecasted truck traffic using each corridor (veh/day) and the overall distance they travel within the TRANS model between their origins and destinations. Alignments that focus truck traffic on controlled access routes and arterials roads, that minimize travel time and distance, and that remove the most through truck traffic from Ottawa downtown (particularly King Edward corridor) are preferred.	veh/day kms travel time
2. Transit Operations	Estimates how each corridor will contribute to improved performance of the transit system in the future with consideration for the future network improvements planned in Gatineau and Ottawa and how well the new interprovincial corridor supports the optimal scenario for Interprovincial transit. This sub-factor measures the effect of the new link on interprovincial ridership. Alignments that encourage transit ridership are preferred.	interprovincial ridership
3. Traffic Operations	Calculates the expected level of service along the corridor with particular attention to the signalized and unsignalized intersections and driveways, their character and traffic volumes. Also considers the impact on LOS on other interprovincial crossings resulting from the addition of the new crossing. Reviews the potential for changes to travel patterns and the possible impact on other roads. The assessment includes review of the impact of the alignment on the overall network in TRANS (travel time/fuel consumption) which relate to the economic environment (cost to drivers and society). Alignments that provide that best overall level of service, the best travel time and lowest fuel consumption are preferred	LOS Overall travel time Overall fuel consumption Changes to traffic volumes on other roads and bridges
4. Traffic safety	Uses the measurement of the physical features of the alignment such as the number and type of intersections and driveways, their traffic volumes and characteristics to assess the anticipated safety performance of each alignment with regard to vehicles, cyclists and pedestrians.	estimate of safety performance for pedestrians, cyclists and vehicles
5. Connectivity to non-motorized infrastructure	Assesses the connectivity of existing and planned facilities (on-road and off-road) for pedestrians and cyclists to each corridor to estimate potential use by non-motorized modes. Considers existing and future cycling and pedestrian networks described in municipal planning documents, whether connections are provided on one or both sides of the river and the nature/ease of these connections,	Good, better, best
2.0 Natural Environment		
2.1 Species at Risk		
6. SAR and their habitat federally and, provincially designated)	Measures the presence and number of fauna and flora Species At Risk and their habitat in the vicinity of the corridors. Alignments that do not impact SAR or their habitat are preferred. All protected species in Ontario and Quebec and under federal legislation are included.	Number and type of species, categorized by governing legislation and designation (endangered, threatened, vulnerable, etc.), area of habitat
2.2 Air Quality/Green House Gases		
7. Total Emission Burden for Criteria Contaminants	Measures the total emission for each alignment of each of the criteria contaminants (NO/NO_2, CO, PM_{10}, $PM_{2.5}$ and VOC). Emissions burden will be determined through transportation modelling of alignment alternatives. The alignment which generates the lowest overall emissions will be preferred.	tonnes/yr
8. Total Emission Burden for GHG Contaminants	Measures the total emission for each alignment of the Green House Gases (CO_2, N_2O, and CH_4) expressed as CO_2 equivalent tonnes. Emissions burden will be determined through transportation modelling of alignment alternatives. The alignment which generates the lowest overall emissions will be preferred.	tonnes/yr
2.3 Fisheries and Aquatic Habitat		
9. Fish Habitat Features Including Spawning, Rearing, Nursery and Feeding Areas.	Measures the area and type of fish habitat impacted and the significance of that impact. Alignments that have a no net loss of fish habitat are preferred.	m^2
10. Extent of aquatic and wetland vegetation	Measures the amount of aquatic vegetation, marshes and grass beds affected. This vegetation is generally used as nursery, rearing, feeding and spawning habitat. It also provides cover to fish. Crossings affecting the smallest areas are preferred.	ha
11. Project footprint on fish habitat (outside of aquatic vegetation and floodplain areas)	Project footprint on fish habitat (potential impact on channel morphology, hydrodynamics and sediment transport.	ha
12. Off-Channel fish habitats – floodplain	Measures extent of the floodplain (Riparian and bank vegetation) within the corridor. The crossings with lowest extent are preferred	m^2

13. Off-channel fish habitat – Number (length) of tributaries crossed	Measures the area and nature of fish habitat impacts along tributaries to the Ottawa River. Tributaries are generally used as migration corridor to fish nursery, rearing, feeding or spawning habitats.	Number or m
2.4 Hydrotechnical		
14. Water Quality (Surface)	Measures the amount of stormwater runoff generated by each alternative using a volume per Rainfall Duration for comparison. The alternative that produces the least amount of stormwater runoff is preferred. The cost of stormwater management to address water quality and quantity issues may be included in the Cost factor to result in reduced or no net impacts for this sub-factor.	m^3/day produced
15. Groundwater	Measures the effect on groundwater recharge and discharge areas, shallow water supply wells (<15 m deep) within 500 m of the alternative and changes to groundwater quality. Measures the area potentially sensitive to groundwater contamination impacted by the alignment (e.g. high water table, high permeability soils, significant ecological function). Estimates the area where the alternative crosses identified/anticipated deep road cuts. Considers the potential for degradation to groundwater quality.	m^2 crossing sensitive locations and significance of potential impact
16. Loss of Floodplain Storage	Measures the amount of floodplain storage removed by the alternatives. Alternatives that avoid impacting the floodplain of the Ottawa River are preferred.	M^3
2.5 Terrestrial		
17. Wetlands – federal and provincial	Measures area and characteristics of the impacts to all wetlands (including Muskrat Habitat) designated federally and in Ontario and Quebec. Also considers the impacts on unclassified wetlands.	Ha Nature of impact
18. Migratory Bird Nesting or staging Impact	Measures the impact on species protected by the Migratory Bird Act. Seasonal and permanent impacts will be evaluated.	Yes/ no Nature of impact
19. Federally, Provincially and Regionally Significant or rare natural areas and habitat (excluding wetlands)	Measures area and character of impact on Ontario Areas of Natural and Scientific Interest (ANSIs), candidate PS ANSIs, and Quebec Provincially Significant habitat (rare vegetation, nature reserves, Kettle Island) as well as regionally designated natural areas.	Ha Nature of impact
20. Inland Wildlife Corridor	Measures the potential impact on movement of biota between natural habitat areas (excluding open Ottawa River). Considers wildlife corridors identified during field investigations	Yes/ no Nature of impact
21. Wildlife Habitat, including, Reptiles, Mammals, Amphibians and Flora.	Considers the potential impact to wildlife habitat of all types not covered under provincially or regionally significant areas, and includes fauna and flora habitat. Corridors with the least impact on wildlife habitat are preferred.	Ha Nature of impact
2.6 Environmentally Sensitive Areas		
22. Slope Stability	Measures the number of locations where an alignment crosses lands identified in municipal documents as environmentally sensitive areas, including locations with slope stability concerns such as the Ottawa River and Green's Creek	Number of locations affected and significance
3.0 Cultural Environment		
3.1 Heritage and Archaeology		
23. Built Heritage sites impacted.	Measures the potential impact to built heritage sites. The crossings that do not impact built heritage sites are preferred.	Number
24. Historic Archaeological potential areas impacted	Measures the potential impact to areas of historic archaeological potential. The crossings that do not impact historic archaeological potential are preferred.	Ha
25. Cultural landscape features	Measures the potential impact to areas with cultural landscapes including historic vistas and views such as, waterscapes, roadscapes and railscapes. The crossings that do not impact these landscapes are preferred.	Qualitative
26. Prehistoric Archaeological potential areas impacted (including Aboriginal Archaeological potential)	Measures the potential impact to areas of High, Medium and Low archaeological potential. Areas with high and medium archaeological potential will be subjected to a Stage 2 assessment. The crossings that do not impact areas with archaeological potential are preferred.	Ha
3.2 Aboriginal Interests		
TBD	Note that Interests of the KZA and AOO are contained within the factors describing the natural environment (aquatic and terrestrial environments, water and air quality) and the social environment (aesthetics and recreation). Additional sub-factors may be identified during Phase 2B.	TBD

4.0 Social Environment		
27. Community	Considers the impact to adjacent existing communities (not measured elsewhere) due to: • presence of a new road, • widening of an existing road and/or • inclusion of an existing roadway as part of the interprovincial Crossing (change to the type and volume of traffic using the road). Considers the layout, use and location of community amenities such as schools, hospitals, churches, senior's centres, community centres and neighbourhoods and the corresponding transportation network for vehicles, pedestrians and cyclists. The measurement of this sub-factor will be based on the number and type of access routes to community facilities that cross the corridor as well as other impacts on community features that are not measured elsewhere. The impacts on these access routes, and the significance of these impacts will be assessed.	Comparison will be quantified where possible and based on the number and type of accesses to community facilities that cross the corridor
28. Visual Intrusion of new crossing	Measures the number of dwelling units with a view of new crossing route. This includes views of the river that may be altered by a new structure with consideration for the distance from the dwelling to the proposed crossing. Any dwelling units with a view on the new route will be included in this sub-factor with consideration for the nature of the impact. Views obstructed by mitigation measures such as new noise walls and landscaping will also be considered.	Number of dwellings and distance to new route
4.1 Human Health		
29. Air quality impacts on human health	This sub-factor will provide a measure of the relative Air Quality and population exposure among the corridors. Two substances will be used as part of the measure: NO_2, which is a direct tailpipe emission and is a pre-cursor to smog formation; and inhalable particulate ($PM_{2.5}$) which derives from roadway dust re-suspension and is of concern to sensitive individuals in urban environments. For each alignment alternative, dispersion modeling using future traffic data from the TRANS model, future vehicle regulations and existing data on traffic characteristics will be used to identify the number of sensitive receptors (land uses) where the concentration of contaminants will be above the guidelines of the federal government with consideration for the estimated number of hours per year when these conditions are predicted to prevail.	Estimated number of hours per year with contaminant levels in excess of guidelines
30. Noise impacts.	Measures the number of noise sensitive areas that will be affected by sound level increases of between 3 dBA and 5 dBA and greater than 5 dBA with consideration for the availability of suitable mitigation measures. The cost of noise walls, where identified as an effective measure may be included in the Cost factor to result in no net impacts for this sub-factor.	Number
31. Vibration impacts.	Measures if there will be buildings (residences, store, schools, etc.) that could be affected by vibration increases due to a Crossing with consideration for known subsurface conditions, existing and forecasted traffic characteristics. Considers the nature and severity of vibration impacts and the availability of mitigation measures, where appropriate.	Number and likely severity
4.2 Recreation		
32. Scenic Parkways	Measures the impact to the NCC Parkways including relocation of the alignment and new intersections. Alternatives that do not impact the parkways are preferred.	Yes/no Length
33. Recreational facilities	Measures whether an alternative will impact existing recreational facilities. Facilities include access points, buildings, and parking lots. Alignments that cause the least disruption to existing facilities are preferred. The number and type of facilities, as well as the nature of the impact will be assessed. The cost of new/relocated facilities (mitigation measures) may be included in the cost assessment for this sub-factor	Number and impact to affected facilities,
34. Boating Activities	Measures how the new crossing will affect sail, human-powered and power boating activities in the Site Study Areas with consideration for: • Fragmentation of Boating System. • Ability to accommodate navigability at marina entrances. • Impact to Long Distance Sail Racing. • Impact to sailing and canoeing schools. • Ability to accommodate wind powered craft (non-motorized craft). • Impact to human-powered and motorized watercraft • Number of piers. • Angle of crossing. Alternatives that least affect boating activities are preferred.	Qualitative
35. Ability to accommodate float planes.	Measures the ability of an alternative to accommodate take off and landing (into the wind (typically westerly) of float planes on the Ottawa River, in particular in the vicinity of the established landing zone for Rockcliffe Airport water facility.	Present / Absent

5.0 Water Use and Resources		
36. Impacts on water purification	Measures the potential impact on the water intake of the Gatineau water treatment plant 0.6km downstream of Corridor 5. This impact will be evaluated according to its severity and whether the impact can be mitigated.	Impact on operations (significant/ not significant)
37. Impacts on wastewater treatment plants	Measures the potential effect to water quality with respect to existing outfalls from the wastewater treatment plants (one in Gatineau and Ottawa) upstream from Corridor 6. Impact on plant operations will also be considered. This impact will be evaluated according to its significance and whether the impact can be mitigated.	Net impact on water quality and plant operations (significant/ not significant)
6.0 Economic Environment		
38. Potential for economic development in proximity to the new alignment	Measures the ability of an alternative to improve and support the accessibility to existing and planned industrial, office and commercial development areas, as well as intermodal facilities as identified by the municipalities. The best alternative will provide the best proximity to these major employment areas.	Proximity of alignments to development areas
7.0 Land Use and Property		
39. Conformity with Official Plans (cities and NCC)	Measures the impact to land use and growth management strategies in municipal plans and plans of the NCC. Those Crossings which conform to existing municipal plans are preferred.	number and type of non-conformities
40. Federal Master Plans and Special Purpose or Protected areas (e.g. Greenbelt)	Measures the impact on special and/or protected areas designated within federal or municipal planning documents including the Greenbelt and McLaurin Bay. Considers loss of land and fragmentation within the designated area.	Area Significance of loss and fragmentation
41. Loss of future development.	Measures whether a crossing will impact future development, identified by the cities of Gatineau and Ottawa. Alignments that remove the least amount of future development properties are preferred.	Area of developable land required (ha) Land use type Floor Area permitted in by-law
42. Residential property required.	Measures whether a crossing will impact existing residences Partial or complete utilisation of existing residences for alignments or mitigation measures will be identified. Alignments that remove the least amount of residential property from the fewest parcels are preferred. Those that require the purchase of land from existing residential properties are less desirable. Conditions necessitating a buyout are to be determined. The total costs of buyouts will be assessed.	Number of parcels affected and the area required from each total $ of all buy-outs
43. Commercial/ industrial property required.	Measures whether a crossing will impact existing commercial/industrial property. Partial or complete utilisation of existing properties for alignments or mitigation measures will be identified. Alignments that remove the least amount of residential property from the fewest parcels are preferred. Those that require the purchase of land from existing commercial/industrial properties are less desirable. Conditions necessitating a buyout are to be determined. The total costs of buyouts will be assessed.	Number of parcels affected and the area required from each total $ of all buy-outs
44. Institutional Property required (excl. Greenbelt)	Measures whether a crossing will impact existing institutional property. Those crossings which result in a loss of institutional property are less desirable.	ha
45. Agricultural Property required	Measures whether a crossing will impact existing agricultural property. Areas severed by alignments will be determined. Alignments that remove or sever the least amount of agricultural property are preferred. Those that require the purchase of part of whole parcels are less desirable. Conditions necessitating a buyout are to be determined and the total costs of buyouts will be assessed.	Number
46. Impact on Potentially Contaminated Sites (soil/sediment)	Measures the number of potentially contaminated sites along the corridor, the nature and significance of the problem as determined through historical records and site investigation in accordance with Environmental Site Assessment principles.	Number
47. Impacts to land-based airport activities	Measures whether an alternative will impact the air space required for landings and takeoffs at the Rockcliffe and Gatineau airports and considers other related impacts that are identified. Alternatives that minimize impacts and do not affect the runway and air space are preferred. The cost of runway relocation or alignment design modifications may be included in the Cost factor as a mitigation measure	Yes/no
8.0 Costs		
48. Capital, operating, and maintenance costs.	Measures the difference in property, construction, operating and maintenance costs between the alignments.	$

Factors and Sub-factors from Phase 1 to 2

The following table presents information tracking the modifications to the Evaluation Factors and subfactors from Phase 1 to Phase 2A. About 90 sub-factors in 7 factor groups were considered in Phase 1. In Phase 2A, it is proposed that the list be reduced to about 50 sub-factors in 8 factor groups. The reduction was accomplished either by removing sub-factors that are no longer relevant to the remaining three corridors, or by combining sub-factors.

Note that the order of sub-factors presented below is from Phase 1; this order has been modified for Phase 2A, as presented in the table above. **Bold text** indicates the first instance of each Phase 2A sub-factor.

List of Sub-factors	Included In Phase 1?	Included In Phase 2?	Related Phase 2 Sub-factor Name	Comments
1.0 Traffic and Transportation				
1. Truck Traffic	Yes	Yes	**Truck Traffic**	
2. Ability to accommodate hazardous goods	Yes	No		No differences between corridors
3. Vehicular Traffic Demand	Yes	Yes	**Traffic Operations**	Sub-factors combined
4. Vehicular Traffic Reductions from Existing Crossings	Yes	Yes	Traffic Operations	
5. Spacing of Signalized Intersections	Yes	Yes	Traffic Operations	
6. Quality of Arterial Road Connection	Yes	Yes	Traffic Operations	
		Yes	**Traffic Safety**	Traffic safety explicitly considered
7. Non- motorized modes of travel	Yes	Yes	**Connectivity to non-motorized infrastructure**	Includes on and off-road facilities
8. Quality of connection to provincial highway system	Yes	Yes	Traffic Operations Traffic Safety	
9. Variation of average travel time per transit trip – without transit on link	Yes	Yes	**Transit Operations**	Transit operations combined into one sub-factor
10. Variation of transit ridership – without transit on link	Yes	Yes	Transit Operations	
11. Variation of average travel time per transit trip – with transit use of link	Yes	Yes	Transit Operations	
12. Variation of transit ridership – with transit use of link	Yes	Yes	Transit Operations	
2.0 Natural Environment				
2.1 Species at Risk				
13. Confirmed Fish SAR	Yes	Yes	**SAR and their habitat federally and, provincially designated)**	Sub-factors combined.
14. Fish SAR Potential	Yes	Yes	SAR and their habitat federally and, provincially designated)	
15. SAR (SARA, SARO, Québec designated)	Yes	Yes	SAR and their habitat federally and, provincially designated)	
16. Potential SAR (Special Concern & Provincially Rare)	Yes	Yes	SAR and their habitat federally and, provincially designated)	
17. Regionally Rare in Gatineau and Ottawa	Yes	Yes	SAR and their habitat federally and, provincially designated)	
2.2 Air Quality/Green House Gases				
18. Total Emission Burden for Criteria Contaminants	Yes	Yes	**Total Emission Burden for Criteria Contaminants**	
19. Total Emission Burden for GHG Contaminants	Yes	Yes	**Total Emission Burden for GHG Contaminants**	
20. Impact on Residents	Yes	Yes	Air quality impacts on human health (see Social Environment)	

List of Sub-factors	Included In Phase 1?	Included In Phase 2?	Related Phase 2 Sub-factor Name	Comments
2.3 Fisheries and Fish Habitat				
		Yes	**Fish Habitat Features Including Spawning, Rearing, Nursery and Feeding Areas**	Sub-factors combined into one new one
21. Extent of aquatic vegetation	Yes	Yes	**Extent of aquatic and wetland vegetation**	Modified to include wetland vegetation
22. Number of confirmed and potential spawning sites within corridor	Yes	Yes	Fish Habitat Features Including Spawning, Rearing, Nursery and Feeding Areas	
23. Number of confirmed Spawning Sites within 2 km of corridor	Yes	Yes	Fish Habitat Features Including Spawning, Rearing, Nursery and Feeding Areas	
24. Project footprint on fish habitat	Yes	Yes	**Project footprint on fish habitat (outside of aquatic vegetation and floodplain areas)**	Sub-factors combined
25. Off-Channel fish habitats – extent of the floodplain	Yes	Yes	**Off-Channel fish habitats – floodplain**	
26. Off-channel fish habitat – Number (length) of crossings of tributaries	Yes	Yes	**Off-channel fish habitat – Number (length) of tributaries crossed**	
27. Fish habitat structure – Shoreline Length	Yes	Yes	Project footprint on fish habitat (outside of aquatic vegetation and floodplain areas)	
28. Fish habitat condition – Shoreline Disturbance	Yes	Yes	Project footprint on fish habitat (outside of aquatic vegetation and floodplain areas)	
2.4 Hydrotechnical				
29. River Hydraulics	Yes	No		No difference between corridors. For preliminary design only
30. Water Quality (Surface).	Yes	Yes	**Water Quality (Surface)**	
		Yes	**Groundwater**	To include quality impacts on groundwater and hence wells
31. Loss of Floodplain Storage	Yes	Yes	**Loss of Floodplain Storage**	
2.5 Terrestrial				
32. Provincially Significant (PS) natural areas and habitat (excluding wetlands)	Yes	Yes	**Federally, Provincially and Regionally Significant or rare natural areas and habitat (excluding wetlands)**	Subfactors combined
33. Regionally Significant natural areas and habitat (excluding wetlands)	Yes	Yes	Federally, Provincially and Regionally Significant or rare natural areas and habitat (excluding wetlands)	
34. Provincially Significant Wetlands (PSW)	Yes	Yes	**Wetlands – federal and provincial**	
35. Waterfowl Staging Area.	Yes	Yes	**Migratory Bird Nesting or staging Impact**	
36. Significant Valley lands.	Yes	Yes	Federally, Provincially and Regionally Significant or rare natural areas and habitat (excluding wetlands)	
37. Natural Woodlands	Yes	Yes	Federal, Provincially and Regionally Significant or rare natural areas, and Wildlife habitat	
38. Interior Forests	Yes	Yes	Federal, Provincially and Regionally Significant or rare natural areas, and in Wildlife habitat	
39. Inland Wildlife Corridor	Yes	Yes	**Inland Wildlife Corridor**	
		Yes	**Wildlife Habitat, including, Reptiles, Mammals, Amphibians and Flora.**	Covers habitats not included elsewhere.

List of Sub-factors	Included In Phase 1?	Included In Phase 2?	Related Phase 2 Sub-factor Name	Comments
2.6 Environmentally Sensitive Areas				
		Yes	**Slope Stability**	Considers banks of watercourses and valleys where slope stability is a concern.
3.0 Cultural Environment				
3.1 Heritage and Archaeological				
40. Built Heritage sites impacted.	Yes	Yes	**Built Heritage sites impacted.**	
41. Historic Archaeological potential areas impacted	Yes	Yes	**Historic Archaeological potential areas impacted**	
42. Cultural landscape features	Yes	Yes	**Cultural landscape features**	
43. Prehistoric Archaeological potential areas impacted.	Yes	Yes	**Prehistoric Archaeological potential areas impacted (including Aboriginal Archaeological potential)**	Subfactors combined
3.2 Aboriginal Interests				
44. Aboriginal Archaeological potential - High (Federal Lands only)	Yes	Yes	Prehistoric Archaeological potential areas	
45. Aboriginal Archaeological potential – Medium (Federal Lands only)	Yes	Yes	Prehistoric Archaeological potential areas	
46. Aboriginal Archaeological potential – Low (Federal Lands only)	Yes	Yes	Prehistoric Archaeological potential areas	
		Yes	**Aboriginal Interests (not covered elsewhere)**	Subfactors to be determined
3.3 Community				
			Air quality impacts on human health	
47. Noise impacts	Yes	Yes	**Noise impacts**	
48. Vibration impacts	Yes	Yes	**Vibration impacts**	
49. Community Cohesion	Yes	Yes	**Community**	
50. Water Wells Impacted	Yes	Yes	Groundwater (see Hydrotechnical)	
51. Visual Intrusion Bridge	Yes	Yes	**Visual Intrusion of New Crossing**	
52. Visual Intrusion Roadway	Yes	Yes	Visual Intrusion of New Crossing	
53. Impact to the Cumberland Masson Ferry	Yes	No		No impact by current corridors
54. Magnetic Field Impact on Montfort Hospital MRI	Yes	Yes	Vibration impacts	
3.4 Recreation				
55. Cycling Facilities (road)	Yes	Yes	Non-motorized transport infrastructure	
56. Andrew Haydon Park	Yes	No		No impact by current corridors
57. Riverfront Park	Yes	No		No impact by current corridors
58. Petrie Island Stuemer Park	Yes	No		No impact by current corridors
59. Scenic Parkways	Yes	Yes	**Scenic Parkways**	
		Yes	**Recreational facilities**	
60. Multi Use Pathways (off-road)	Yes	Yes	Non-motorised transport infrastructure	
		Yes	**Boating Activities**	
		Yes	**Ability to accommodate float planes**	

List of Sub-factors	Included In Phase 1?	Included In Phase 2?	Related Phase 2 Sub-factor Name	Comments
4.0 Water Use and Resources				
61. Impacts on water purification plants	Yes	Yes	**Impacts on water treatment plants**	
		Yes	**Impacts on wastewater treatment plants**	
62. Views or vistas Impacted	Yes	Yes	Visual Intrusion of New Crossing	
63. Relocation of Sailing Club	Yes	Yes	Boating Activities (see Recreation)	
64. Sailing Activities	Yes	Yes	Boating Activities (See Recreation)	
5.0 Socio-economic Environment				
		Yes	**Potential for economic development in proximity to the new alignment**	(see Economic Environment)
65. Potential for support and improvement of the downtown economy (tourism, redevelopment, etc.)	Yes	No		No difference between the corridors
66. Potential for industrial and intermodal economic development in the new corridor	Yes	Yes	Potential for economic development in proximity to the new alignment	
67. Potential for Service and Office Economic Development in the new corridor	Yes	Yes	Potential for economic development in proximity to the new alignment	Included in Potential for economic development in proximity to new alignment
68. Travel time savings–personal vehicles and transit	Yes	Yes	Traffic Operations	Included in transportation analysis
69. Travel time savings – commercial vehicle.	Yes	Yes	Traffic Operations Truck Traffic	Included in transportation analysis
70. Vehicles operating cost savings (fuel, maintenance) – personal cars.	Yes	Yes	Traffic Operations	Included in transportation analysis
71. Vehicles operating cost savings commercial vehicles	Yes	Yes	Traffic Operations	Included in transportation analysis
6.0 Land Use and Property				
72. Conformity with Official Plan and Other Land Use Strategies	Yes	Yes	**Conformity with Official Plans (cities and NCC)**	
		Yes	**Federal Master Plans and Special Purpose or Protected areas (e.g. Greenbelt)**	Sub-factors combined
73. Loss of future development.	Yes	Yes	**Loss of future development**	
74. Recreational Property required (includes Greenbelt)	Yes	No		Measured in Recreational Facilities, Protected Areas and Institutional property
75. Residential property required not including buyouts	Yes	Yes	**Residential property required**	Sub-factors combined
76. Loss of Commercial/ industrial property not including buyouts	Yes	Yes	**Commercial/ industrial property required**	Sub-factors combined
77. Loss of Institutional Property (excl. Greenbelt and buy-outs)	Yes	Yes	**Institutional Property required (excl. Greenbelt)**	Sub-factors combined
78. Utility Corridor Relocation	Yes	Yes	Capital, operating, and maintenance costs	Included in costs
79. Utility Property Required	Yes	Yes	Commercial/industrial property required	
80. Institutional Potential Buyout	Yes	Yes	Institutional Property required (excl. Greenbelt)	
81. Residential Potential Buyouts	Yes	Yes	Residential property required	
82. Commercial potential buy-out	Yes	Yes	Commercial/industrial property required	
83. Agricultural potential buy-out	Yes	Yes	**Agricultural Property required**	Sub-factors combined
84. Agricultural Property (Protected Quebec) Required	Yes	Yes	Agricultural Property required	

List of Sub-factors	Included In Phase 1?	Included In Phase 2?	Related Phase 2 Sub-factor Name	Comments
85. Farm land severance	Yes	Yes	Agricultural Property required and Federal Master Plans and Special Purpose or Protected areas	
86. Area of Severed Greenbelt (Crossings 6 and 7 to the Rockcliffe Parkway)	Yes	Yes	Federal Master Plans and Special Purpose or Protected areas	
87. Number of Potentially Contaminated Sites	Yes	Yes	**Impact on Potentially Contaminated Sites (soil/sediment)**	
88. Agricultural Property required (ON Greenbelt)	Yes	Yes	Agricultural Property required	
			Impacts to land-based airport activities	Corridor 5 and 7 alignments may impact airport activities
7.0 Costs:				
89. Capital, operating, and maintenance costs.	Yes	Yes	**Capital, operating, and maintenance costs**	Subfactors combined
90. Future maintenance and operating life cycle costs.	Yes	Yes	Capital, operating and maintenance costs	

Appendix B

List of Technical Tasks

This appendix presents a list of technical studies that will be undertaken in Phase 2B.

1.0 Traffic and Transportation
Truck Traffic
Transit Operations
Traffic Safety
Traffic Operations
Connectivity to non-motorized transportation infrastructure

2.0 Natural Environment
Species at Risk
Air quality assessment
Fisheries and Aquatic Habitat study
Hydrotechnical, including water quality, hydraulics, hydrology (see Design/Engineering below)
Terrestrial

3.0 Cultural Environment
Built Heritage and Cultural Landscape Study
Stage 2 Archaeological Assessment
Aboriginal Interests

4.0 Social Environment
Community Impacts Study
Visual Assessment Study
Air quality (see Natural Environment above)
Noise and Vibration Assessment
Recreation facilities and scenic parkways (see Land Use and Property Study)
Water Use – boating and sailing

5.0 Water Use and Resources
Water and wastewater treatment plants (considered in hydrotechnical)

6.0 Economic Environment
Economic Development Potential

7.0 Land Use and Property
Land Use and Property Study
Potential Site Contamination Study
Impacts on Aviation Activities (including water based aircraft)

8.0 Costs and Design/Engineering
Preliminary Construction Cost Estimate
Hydrotechnical
Functional Design
Preliminary Design
Geotechnical Investigation
Foundations Investigation

Appendix B - Technical Studies

As stated in section 4.3, this appendix presents the scope and the methodology for the technical studies that will be performed during Phase 2B.

1.0 Traffic/Transportation

Name of Study	Analysis of Truck Traffic
Objective	Determine the differences between the corridors related to heavy vehicle traffic. Determine the volume of truck traffic diverted to each of the three potential future Interprovincial Bridges under the following scenarios: • Heavy vehicle route designation removed from King Edward Avenue, Rideau, Waller, Nicholas. • No heavy vehicles permitted on the King Edward Avenue, Rideau, Waller, Nicholas route, i.e. vehicles with more than 2 axles and six wheels with a weight of more than 12,000 kg would be prohibited • Heavy vehicle use of the King Edward Avenue, Rideau, Waller, Nicholas route limited to the hours of 7 a.m. to 7 p.m. • Interprovincial heavy truck traffic status quo. All scenarios assume that the rest of the truck route designation in urban Ottawa remains the same (i.e. trucks could use Chaudière Bridge, the new bridge and Macdonald Cartier Bridge – Sussex Drive).
Inputs	Daily interprovincial truck information for 2031 developed in Phase 1 Current truck survey from provincial agencies to obtain the proportion of different classifications of trucks Current TRANS peak period traffic model for 2031 Available input from strategic level Goods Movement Study
Scope and Methodology	• Discuss scenarios with Study Team and City Transportation Planning group • Undertake survey to estimate the proportion of local versus interprovincial trucks on King Edward (potentially a license plate survey) • City Modeller will run the EMME daily truck model where feasible to assess defined scenarios. Otherwise the consultant team will complete the analysis outside of the model for the four different scenarios for each of the bridge crossing corridors • Review and analyze results with regard to traffic on all interprovincial crossings. Determine the differences between the corridors
Output	Observation of proportion of local versus interprovincial truck traffic on King Edward Avenue Differences between the corridors: • Truck volumes on Interprovincial bridges in the NCR under a variety of conditions (diagrams of modelled movements may provide a visual explanation of the output. • Percentage trucks in the various size and weight classifications as provided by the survey, using the various crossings. • Overall travel distances involved in reaching the destination and the conditions along the routes. This is a measure of the amount of out-of-way travel when comparing one corridor to another. It may also provide an approximate comparison of fuel consumption.

Name of Study	Analysis of Transit Operations
Objective	Determine: • the impact on transit operations, including service performance with the addition of a new Interprovincial Crossing • To what degree the new Crossing supports the future rapid transit networks defined in municipal planning documents for Ottawa and Gatineau as well as the optimal scenario(s) developed under the Interprovincial Transit Strategy Study
Inputs	The scenarios for interprovincial transit including operational options and infrastructure options being carried forward in the Interprovincial transit strategy

	Existing and future planned rapid transit networks in Ottawa and Gatineau Information from Ottawa and Gatineau transit operators with regard to their potential future use of a new Interprovincial Crossing Traffic output from TRANS model for the Macdonald Cartier-King Edward corridor with a new Interprovincial Crossing in place in order to assess the impacts on transit use of the Macdonald Cartier Bridge
Scope and Methodology	• Discuss with transit operators the potential impact on future transit operations of a new crossing. Identify, with the input of transit operators, possible service improvements that could be attributed to the presence of an additional crossing. Review with transit operators the results from the current TRANS model and assess whether changes to traffic will impact their operations. Assess the impact on ridership of any changes • Discuss optimal scenario for interprovincial transit with the Transit Study Team. Identify the relationship between the interprovincial transit scenario and the three crossing corridors under consideration. Discuss how the compatibility can be evaluated and whether a difference in the assessment of compatibility is expected between the corridors. • Discuss the future rapid transit networks. Assess whether the proposed crossings will facilitate ridership through helping to improve transit service or through providing improved connections • Provide an overall assessment of the potential for ridership improvements for each corridor.
Output	Differences between the corridors: • Discussion of how each of the corridors would contribute to improved transit operations in the NCR, with a view to the future plans for rapid transit and interprovincial transit. • Comparison of transit use for the 3 interprovincial corridors

Name of Study	**Analysis of Traffic Safety**
Objective	Determine the differences between the corridors with regard to traffic safety:
Inputs	Geometric design of corridor alignments to be considered Design speed of roadway elements Length of each classification of roadway Number of intersections and the type of intersection control Turning movement volumes at the intersections Pedestrian and cyclist volumes and patterns
Scope and Methodology	• Characterize the safety-related elements of each of the alignments to be assessed (from Autoroute 50 to Highway 417). Safety-related elements to be considered for motorized traffic and vulnerable road users. Safety-related elements are: o Safety related to operations: ▪ Number of signalized intersections with arterial roads/highways ▪ Number of signalized and unsignalized intersections with collector roads ▪ Number/type of intersections with local roads ▪ Number and character of driveways ▪ Length of controlled access divided highway ▪ Length of divided arterial ▪ Roadside character o Safety related to construction: ▪ Length of existing road/highway to be widened ▪ Length of greenfield construction • Considering the input data, assess the differences between the alignments with respect to traffic safety during and after construction
Output	Differences between the corridors: Assessment of the anticipated overall safety performance of the corridors for all road users with respect to conflict points, potential for speed variations and driver expectancy.

Name of Study	Analysis of Traffic Operations
Objective	Determine the differences between the corridors with regard to traffic operations
Inputs	Current TRANS model results including aggregate travel time and distances Geometric design of corridor alignments to be considered Number of intersections and the type of intersection control Turning movement volumes at the intersections Existing and forecasted traffic volumes on interprovincial bridges in Ottawa-Gatineau Existing and forecasted traffic volumes on roads with significant changes to travel patterns resulting from the presence of the new interprovincial crossing

Scope and Methodology	• Characterize the operations-related elements of each of the alignments to be assessed (between Autoroute 50 and Highway 417) during the construction phase and for the crossing corridor when operational:
	  ○ Completed facility:
	  ▪ LOS of Interprovincial Crossing connection
	  ▪ LOS at intersections with municipal and federal roads
	  ▪ LOS at provincial highway interchanges
	  ▪ Out-of-way travel
	  ○ During construction:
	  ▪ Length of existing road/highway to be widened
	  ▪ Length of greenfield construction
	• Assess the overall LOS on all interprovincial bridges in Ottawa-Gatineau with each of the new corridors in place
	• Review 2031 modelled traffic volumes without and with each of the alternative corridors in place to identify routes where traffic volumes are predicted to change significantly with the new crossing in place. Assess impacts on "other roads" as a result of the new crossing.
	• Considering the input data, assess the differences between the alignments with respect to traffic operations during and after construction using Synchro SIm-Traffic or equivalent traffic operations software. Obtain kilometres-driven and fuel consumption estimates from the model for the various scenarios for comparison

Output	Differences between the corridors: • Assessment of the anticipated operational performance of the corridors with respect to level of service at intersections, interchanges and along links. • Assessment of operations on all interprovincial bridge crossings in Ottawa-Gatineau • Assessment of impacts on other roads in the network • Assessment of the significance of any differences between the corridors with respect to results

Name of Study	Analysis of connectivity to non-motorized transportation infrastructure
Objective	Determine the usefulness of the Interprovincial Crossing for pedestrians and cyclists and the differences between the corridors
Inputs	Maps of existing pathways, dedicated and multi-use, in federal (NCC), Gatineau and Ottawa Municipal planning documents for future Pedestrian and Cycling networks including on-road and off-road facilities
Scope and Methodology	• Identify existing and future infrastructure (on-road and off-road) for pedestrians and cyclists in the vicinity of the corridor alignments • Identify possible connections between pedestrian and cycling infrastructure designed into alignment alternatives and this existing and future infrastructure. • Assess the distances to pedestrian and cycling destinations in consultation with Study Team and community groups • Considering the input received, assess the differences between the alignments with respect to connectivity to non-motorized infrastructure
Output	Differences between the corridors: • Maps illustrating potential connections between existing and future multi-use pathways and bicycle routes and the Interprovincial crossing in Ottawa and Gatineau. • Assessment of the potential for use of the corridors by non-motorized modes.

2.0 Natural Environment

Name of Study	Species at Risk
Objective	Identify potential impacts on species at risk and their habitat, including flora and fauna
Inputs	Federal, Ontario and Quebec legislation defining and describing species at risk (SAR) Technical tasks described for Fisheries and Terrestrial components of the natural environment
Scope and Methodology	For each corridor alignment: • Identify SAR (both flora and fauna) present or potentially present within the Site Study Areas and their designations within the applicable legislation • Identify constraints on the development of alignments that must be respected for the technical team • Assess the potential impact on SAR or their habitat as a result of the crossing • Make recommendations for revisions to identified alignments to eliminate or minimize potential impacts • Review proposed alignments and advise on any locations with unacceptable impacts For the selected alignment: • Incorporate changes to eliminate or minimize impacts where identified • Describe mitigation measures to minimize impacts on SAR and their habitats
Output	Difference between the corridors: • Number of SAR species or their habitat potentially impacted by each corridor, the nature of that impact and the suitability of mitigation measures to eliminate or reduce the impacts • Description of the net environmental effect of each of the three corridors

Name of Study	Air quality assessment
Objective	Determine differences between the corridors with regard to air quality. Assess impact on air quality of the recommended corridor
Inputs	Existing ambient air quality conditions in study area based on most recent 5 years of data from relevant monitoring stations National Ambient Air Quality Objectives for pollutants of interest Existing weather conditions for CAL3QHCR dispersion model Default vehicle mix for current version of MOBILE air quality model Hourly traffic volume distribution (estimated for new corridor using data from existing roads where available (Highway 417, 174, 148, 50 and arterials) Sensitive receptor locations, including daycare facilities, schools, senior housing facilities, hospitals within 250 m of an alignment Current TRANS model outputs for 2031 traffic Digital base mapping with property fabric and satellite image Functional Designs - 3 corridors Preliminary design of the selected alignment
Scope and Methodology	For each Corridor: • Locate sensitive receptors • Characterize existing air quality (situation without the project) using MOBILE and CAL3QHCR models and required inputs • Model existing and future air quality situation (including cumulative effects), • Compare predicted concentrations with relevant air quality standards • Identify levels of air contaminants that are higher than established guidelines • Identify contribution of the roadway to the levels of air contaminants • Identify potential mitigation measures • Discuss potential effects on human health due to residual adverse impacts, if any • Compare corridors For the selected alignment: • Define effects on air quality related to construction activities • Define mitigation measures - construction and operation periods

Output	Differences between corridors: • Magnitude and duration of exceedances of guidelines for each corridor (for road corridors, particulate matter and ground level ozone are typically the contaminants that are found to exceed guidelines) • Proportion of exceedances attributable to the roadway • Suggestions for mitigation measures to reduce air quality impacts

Name of Study	**Fisheries and Aquatic Habitat study**
Objective	Identify: • the differences between the corridors with regard to impacts on fish and aquatic habitat. • constraints within the Site Study Areas to be avoided so that the project will be in compliance with the *Fisheries Act* allowing DFO to issue an authorization as needed for modifications to fish habitat under Section 35 of the *Fisheries Act*.
Inputs	Site Study Areas Functional Design - 3 corridors Preliminary design - selected alignment Data on fisheries and aquatic habitat generated during Phase 1 Data from government sources updated since Phase 1 documentation Digital base mapping
Scope and Methodology	The scope of the technical tasks for fisheries and aquatic habitat must comply with the document entitled *Project Proposal Guide Submitted to Fisheries and Oceans Canada for Analysis Under the Provisions of the Fisheries Act Respecting Fish Habitat Protection*, issued in June 2004 by DFO, Fish Habitat Management Branch, Quebec Region. For each corridor: The documentation of this technical task will cover the watercourses affected by each alignment under consideration and will include: • Describe environmental components o Physical: description of the watercourse - width, depth, flow, velocity, slope of shores, substrate, bathymetry, substrate particle size, temperature, dissolved oxygen, ice regime, areas sensitive to erosion, hydraulic conditions, human activities etc.; delineation of the recurrence interval for water levels. o Biological: desk studies and field surveys on aquatic and riparian vegetation, fish species, site and surface areas of potential and confirmed fish habitats. Provide accurate descriptions of habitats, including their location, that are conducive to species at risk. • Identify constraints on potential alignments within the Site Study Areas • Identify impacts of the alignments on fisheries and aquatic habitat, the area and nature of the impact and the availability of suitable mitigation measures • Identify net impacts for each alignment For the selected alignment: • Assess impacts on fish habitat associated with the construction and operations phase of the project • Define mitigation measures and characterize residual fish habitat losses and disruption • Outline the general features of a: o fish habitat compensation plan (if required) o construction monitoring program o follow-up monitoring program
Output	Difference between corridors: • Description and assessment of impacts on fisheries and aquatic habitat including species impacted, the sensitivity of the habitat impacted, the size of the habitat impacted and the mitigation measures included in the design to minimize these impacts • Assessment of the need for compensation for each corridor

Hydrotechnical technical task is included in Section 8 Cost and Design/Engineering.

Name of Study	Terrestrial
Objective	• Determine differences between the corridors with regard to biological components, including vegetation, wildlife and their habitats. • Assess impact of the selected alignment on the terrestrial environment
Inputs	Functional Design - 3 corridors Preliminary design - selected alignment Data generated during Phase 1 Digital base mapping
Scope and Methodology	For each corridor alignment: • Desk study - review and update existing data generated during Phase 1 (e.g. with updated list of SAR). Identify gaps in information necessary for design work and assessment of impacts • Prepare field surveys taking into account the seasonal factors for: o Vegetation o Amphibians and reptiles o Birds (including waterfowl on the Ottawa River) o Species at risk (flora and fauna) • Provide input to the comparative analysis of alternative alignments For the selected alignment: • Assess effects according to the steps of project completion • Define mitigation measures and characterize residual effects • Outline the general features of: o compensation plan (if any required) o monitoring program o follow-up program
Output	Differences between corridors: • Survey of vegetation, wildlife and habitat considerations within each corridor • Assessment of impacts on terrestrial environment for each corridor For the selected alignment • Design constraints with respect to terrestrial vegetation, wildlife and habitat • Description of mitigation measures and residual impacts

Work on Environmentally Sensitive Areas is included in the Geotechnical Technical Task in Section 8.

3.0 Cultural Environment

Name of Study	Built Heritage and Cultural Landscape Study
Objective	To determine differences between corridors with regard to built heritage and cultural landscapes and to assess the effects of the selected alignment.
Inputs	Results from Phase 1 Assessment Digital base mapping with property fabric Functional Design - 3 corridors Preliminary design of the selected alignment
Scope and Methodology	For each corridor: • On the Ontario side, assess potential impacts to identified built heritage and cultural landscapes on the basis of the functional design • On the Québec side, inventory built heritage and cultural landscapes and then assess potential impacts on the basis on the functional design • Provide input to the comparative analysis of alternatives

	For the selected alignment: • Finalize impact assessment on the basis of the preliminary design and elaborate, if required, mitigation and monitoring measures
Output	Differences between corridors • Number and significance of built heritage resources impacted • Number and significance of cultural landscapes impacted

Name of Study	**Stage 2 Archaeological Assessment**
Objective	To determine differences between corridors with regard to the archaeological potential and to assess the effects of the selected corridor.
Inputs	Results from Phase 1 Stage 1 Archaeological Assessment Digital base mapping with property fabric Functional Design - 3 corridors Preliminary design of the selected alignment
Scope and Methodology	For each corridor alignment carried forward to assessment: • Identify areas of encroachment on areas of medium to high archaeological potential For the selected alignment : • Conduct a field survey to confirm the archaeological potential • Conduct a Stage 2 Archaeological assessment in accordance with Ontario Ministry of Culture's draft S*tandards and Guidelines for Consultant Archaeologists* (MCL 2006) and Québec's Ministère de la Culture equivalent • Propose Stage 3 Archaeological Assessment where indicated. • Proposed commitments for detail design and construction to identify and protect unanticipated archaeological finds
Output	Stage 2 Archaeological Assessment • Differences between alternatives with respect to potential impacts on archaeological resources • Commitments to further work where indicated

Name of Study	**Aboriginal Interests**
Objective	• To assess the corridors with respect to their potential impact on areas of Algonquin interest • To provide input to the design of the selected alignment with respect to Algonquin interests and rights
Inputs	Information from the Algonquins of Ontario and the Kitigan Zibi Anishinabeg Results of related technical studies and consultations Functional designs Preliminary design
Scope and Methodology	For each corridor • Meet with First Nations and review work completed and ongoing on technical tasks of interest to them (may include archaeology, cultural landscapes, natural environment flora and fauna, water quality, human health, boating activities) • Review functional designs and identify how they may impact on Algonquin rights and interests. Define additional evaluation sub-factors where appropriate to include differences between the alternatives in the comparative analysis • Develop mitigation measures that address any impacts in consultation with the Algonquin and assess the net effects For the selected corridor • Considering Algonquin history and rights, develop preliminary design elements of interest to the Algonquin with consideration for significance, constructability and cost-effectiveness • Incorporate selected elements into the recommended design in consultation with First Nations
Output	Differences between the corridors: • Number and significance of impacts not considered elsewhere including the potential mitigation measures that are applicable

	For the selected alignment • Mitigation measures developed to celebrate Algonquin history and traditions

4.0 Social Environment

Name of Study	Community Impact Study
Objective	• Identify and assess potential impacts on the community not considered elsewhere. • Develop Community Value Plans - One per corridor in each province (See Appendix C for more information on CVPs and how they will be used)
Inputs	Input on community values from communities adjacent to each of the corridors and the status quo Functional designs and preliminary design for selected alignment Mapping of community facilities adjacent to and through the Site Study Areas Principles of good community and public space design, including principles of Crime Prevention Through Environmental Design Principles of Community Cohesion Identification of corridor neighborhoods and their character Socio-demographic profile by neighborhood
Scope and Methodology	For each corridor: • Through Community Consultation Group and other community meetings, identify the community amenities and features in common use, including institutions (schools, community centres, churches, hospitals, senior's residences and centres, parks, open spaces and businesses/shopping areas. Identify prevalent travel patterns (routes) to and from these facilities and modes used (vehicle, walking, cycling) • Assess the impacts of identified corridors (including status quo and increased traffic scenarios) on travel patterns associated with accessing community facilities and the use of those facilities. Assess significance of impacts (not measured elsewhere). • Apply the principles of community and public space design and Community Cohesion as well as the findings of the CVPs to generate a list of potential mitigation measures to minimize identified community impacts. Identify suitable mitigation measures and confirm with communities. For the selected alignment: • Finalise CVPs with the communities involved • Review and enhance mitigation measures as part of the preliminary design
Output	Differences between the corridors with selected, appropriate mitigation measures for the adjacent communities: • Number and type of community amenities and the characteristics of the access to the facilities for each mode of travel. The significance of community impacts (not considered elsewhere) and the potential mitigation measures that are suitable • One Community Value plan per corridor on each side of the River For the selected alignment • Mitigation measures developed to promote community values (as per the Plan) and cohesion and to prevent crime

Name of Study	Visual Assessment Study
Objective	• To understand the visual impacts of the construction of a roadway and bridge within the potential corridors for the purposes of comparison of alternatives. • To enhance the visual integration of the selected alignment.
Inputs	Phase 1 visual assessment documentation Functional and preliminary designs Site survey of potential corridors
Scope and Methodology	For each corridor: • Complete photographic inventory of summer and winter conditions illustrating the environment in the Site Study Areas and views from adjacent land use.

	• Develop a 3D computer model for each of the 3 corridors using functional designs. • Determine with the aid of the 3D Dynamic model the number of dwelling units with a view of the roadway or bridge, where the view has changed due to a new structure being built or where an existing structure has been modified. • Develop, in conjunction with functional design work, possible mitigation measures to enhance visual integration of alignments within corridor For the selected alignment: • Develop mitigation measures to enhance the views to and from the road and bridge and incorporate them into the preliminary design.
Output	Differences between corridors: • The number of dwelling units with a view of a new or modified roadway or bridge per alignment and the character of that view • Computer simulation of views from various locations For the selected alignment: • Potential mitigation measures to enhance the visual integration of the selected alignment

Air quality technical task is included under Natural Environment.

Name of Study	**Noise and Vibration Assessment**
Objective	• Determine differences between the corridors with regard to noise and vibration. • Assess impact of the recommended corridor
Inputs	Current TRANS model outputs for 2031 traffic Estimated traffic for 16 hour period from 07:00 to 23:00 and from 23:00 to 07:00 for arterial roads within 600 m of the corridor Estimated truck traffic (considering possible restrictions on the KERWN corridor) for the same time periods classified into heavy and medium trucks Digital base mapping with property fabric to indicate layout of the road and sensitive receptors for noise Existing and planned posted speed limits Type of ground cover, hard surface or vegetation (absorptive factor) Functional Design - 3 corridors Preliminary design of the selected alignment
Scope and Methodology	Define parameters for analysis: • While MTQ's "Politique sur le bruit routier" uses the Leq 24 hours as a global indicator for noise impact assessment, the MDDEP as well as methods recommended by Health Canada and the City of Ottawa use Leq 16 hours day time and Leq 8 hours for night time periods. All 3 indicators will be used For each corridor alignment: • Identify sensitive receptors to noise and vibration impacts (e.g. hospital) • Model existing and future situation, using 2031 traffic forecasts and suitable inputs • Compare predicted noise levels with relevant standards and evaluate impacts • Determine through a study of existing documentation, the nature of subsurface materials and their properties with respect to vibration transmission • Determine possible mitigation measures for noise and vibration impacts • Compare corridors For the selected alignment: • Adjust impact assessment on the basis of the preliminary design • Define effects related to construction activities • Define mitigation measures - construction and operation periods
Output	Differences between corridors before and after mitigation measures are considered: • Number of sensitive receptors (outdoor living spaces) where sound levels will increase by 3-5 dBA as a result of the new corridor • Number of sensitive receptors where sound levels will increase by over 5 dBA as a result of the new corridor • Number and characteristics of properties where vibration may be a concern

Work on scenic parkways and recreational facilities is included in Land Use and Property technical task

Name of Study	Recreation – Water Use for Boating and Sailing
Objective	To determine the effect of the project on the use of the Ottawa River by watercraft including sail boats, human-powered craft and power boats
Inputs	Functional designs for each bridge in each corridor Data from sailing and boating organizations within a reasonable stretch of the Ottawa River and adjacent water bodies (e.g. McLaurin Bay) upstream and downstream of the corridors, as well as on tributaries such as the Blanche River and Green's Creek Hydrotechnical analysis
Scope and Methodology	For each Corridor: • Inventory of existing sailing and boating facilities • Obtain data on river use for sailing activities such as the range of the course markers set for regattas and races and obtain data on the characteristics of the sail boats in the area. This may include records of organized events and summer weekend observations • Assess interference between the proposed alignments and sailing activities, for both construction and operations phases • Obtain data on river use by power boats and non-motorized watercraft, including watercraft used by private cottages within the Site Study Areas and local study area. This may include contacts with organizations involved in this activity and observations on summer weekends • Assess interference between the proposed alignments and boating activities For selected Alignment • Review if required existing landing and takeoff trajectories and propose alternatives to existing operations. • Provide mitigation measures to minimize impacts on boating activities
Output	Differences between Corridors: • Corridor alignments within established sailing areas used for organized activities such as races and the availability of mitigation measures to continue these activities • Significance of impacts on boating activities For the selected alignment: • Suggestions with regard to navigation spans for discussion with Transport Canada • Mitigation measures to minimize impacts on water craft use of the Ottawa River

5.0 Water Use and Resources

See hydrotechnical for work on water and wastewater treatment plant impacts.

6.0 Economic Environment

Name of Study	Economic Development Potential
Objective	To determine the economic development potential between corridors for the purposes of comparison.
Inputs	Land Use and Property Study Functional Designs – 3 corridors
Scope and Methodology	• Locate commercial, office and industrial lots in proximity to the corridors as designated by land use planning documents of the Cities of Ottawa and Gatineau • Identify undeveloped lots under these designations and determine development potential through measures such as resulting office or industrial space, or the potential number of new jobs (to be conducted as part of Land Use and Property Study)

	• Determine proximity of corridors to vacant lots to determine the attractiveness of new development on these lots if a corridor were built
Output	Potential of each corridor to contribute to economic development considering the amount of development estimated

7.0 Land Use and Property

Name of Study	**Land Use and Property Study**
Objective	• Identify the constraints and opportunities for a crossing in each corridor with respect to current land use and future development. • Assess the impacts to land use and property along the recommended corridor alignment.
Inputs	Ottawa Official Plan Gatineau *Schema d'aménagement* Gatineau Master Plan (*Plan d'urbanisme*) Zoning Plans – latest revisions Greenbelt Master Plan 1996 Plans of agricultural zones from the Commission de protection du territoire agricole du Québec (CPTAQ) – from Phase 1 Municipal and Regional economic development plans Municipal park, greenspace and recreational plans Connectivity to non-motorized infrastructure study Functional Designs – all 3 corridors Preliminary Designs – selected alignment Digital Base Mapping – updated to reflect current conditions
Scope and Methodology	For each corridor: • Update characterization of existing and future land use within and next to site study areas based upon updates to any official planning documents examined in Phase 1; • Identify future development potential within and adjacent to site study areas. Include project descriptions, project floor area potential; Consider projects of residential, commercial, industrial and institutional nature; • Identify all urban use properties affected by different alignments within each corridor. Properties include residential, commercial, industrial, institutional land uses. • Determine the number of parcels, and land area required or affected (requiring mitigation measures). • Determine number of buildings, facilities, and parking lots that are directly affected, including buy-outs. • Identify recreational facilities within Site Study Areas. Facilities include access points, green space, buildings and parking lots supporting recreational activities. Assess, after application of mitigation measures, significance of any impacts on facilities. • Identify agricultural properties affected by different alignments within each corridor, including areas protected by regulation. Determine, after application of mitigation measures, significance and area of farm land lost or severed (including buy-outs). • Criteria for buy-outs to be determined. However, buy-outs will only occur where a taking of land is required, and will be dependent upon functional and preliminary designs. For the selected alignment: • Determine costs of property acquisition and mitigation measures (to be developed in combination with preliminary design);
Output	Differences between the corridors: • Assessment of property requirements by type • Assessment of impacts to land use by type and their significance • Assess the availability of suitable mitigation measures to minimize impacts and describe how these would be effective

	• Determine net land use impacts for each corridor For the selected alignment: • Contribution to preliminary design and mitigation measures with respect to land use and property. • Determination of next steps in development of crossing with respect to land-use planning regulation.

Name of Study	**Potential Site Contamination Study**
Objective	• Conduct a formal Phase 1 Environmental Site Assessment (ESA) for alignment alternatives to assess issues of potential site contamination • Evaluate cost of mitigation of any site contamination for the selected alignment
Inputs	Phase 1 Environmental Site Assessment Study Functional Designs – all 3 corridors Preliminary Designs – selected alignment Digital Base Mapping – updated to reflect current conditions
Scope and Methodology	For each corridor: • Review Phase 1 Screening Level ESA. • Undertake Phase 1 ESA Study according to procedures as set out in November 2001 Canadian Standards Association document, "Phase 1 Environmental Site Assessment, Z768-01". For the selected alignment: • Conduct a Phase 2 contamination study for selected alignment if required. • Assess cost of site decontamination as part of cost estimate;
Output	Differences between the corridors: • The degree of potential site contamination for each alignment For the selected alignment: • Any pertinent ESA results to be used in preliminary design and cost estimates for project.

Name of Study	**Impacts on Aviation Activities**
Objective	To determine impacts, if any to land based aviation activities at Rockcliffe and Gatineau Airports, and water based aviation activities around Rockcliffe Airport.
Inputs	Data from existing float plane operations associated with Rockcliffe Airport Transport Canada TP312 aerial zoning for land and take-off requirements at Rockcliffe Airport Air Interface Protocol (AIP) manual for Rockcliffe Airport Current and future fleet mix (critical aircraft) Functional Designs
Scope and Methodology	For alignments • Determine aerial zoning restrictions/approach surfaces for airport runway and water landing zones according to Transport Canada TP312 aerial zoning regulations; • Determine runway length necessary to accommodate current and future fleet mix (critical aircraft); • Determine usability and reliability of airport runways before and after a new roadway. • Determine usability and reliability of water landing zones before and after a new bridge. • Determine if any mitigation measures are possible and necessary to accommodate aerial zoning restrictions. Assess cost of mitigation measures. For the selected alignment (if it falls within corridor 5 or 7) • Determine the necessary mitigation measures to accommodate aerial zoning restrictions. Assess cost of mitigation measures.
Output	Differences between alignments within corridor 5 and 7: • Design constraints and cost of mitigation measures for Corridor 5 and 7 alignments to accommodate current and future Rockcliffe Airport land and water aviation activities; For the selected alignment:

	• If selected alignment is within Corridor 5 or 7, design considerations for preliminary design respecting airport activities and Transport Canada regulations

8.0 Costs and Design/Engineering

Name of Study	Preliminary Capital Cost Estimate
Objective	• Develop an Indicative Cost Estimate (+/- 20%) for the comparison of the corridors (low level of precision) • Develop a Substantive Cost Estimate (+/- 10-15%) for the alignment carried forward to preliminary design (medium level of precision)
Inputs	Functional designs for alignments Preliminary design (horizontal and vertical alignments, grading and cross-section, related infrastructure such as lighting, SWM facilities) Preliminary design of utility relocations Preliminary General Arrangement Drawings for Bridges and Approaches
Scope and Methodology	For each corridor: • Estimate cost of major items based on functional design dimensions. Use allowances or percentages to estimate minor items • Request budget cost estimates from utility companies based on functional design, where major relocation of their facilities would be required • Obtain budget property costs data for the types of property to be acquired and estimate overall property costs for each alignment For the selected alignment: • Estimate earthworks, grading and pavement quantities based on preliminary design (horizontal and vertical alignment and typical cross-section) and use unit rates to calculate construction cost • Estimate structural costs based on preliminary design including temporary works required to accces and build bridge; • Estimate costs of drainage systems, stormwater management facilities, illumination and signals, landscaping, noise barriers and any mitigation measures included in preliminary design. Provide an allowance where measures have not been defined (such as fisheries compensation measures) • Request updated budget cost estimates from utility companies based on preliminary design, where relocation of their facilities will be required with the selected alignment • Obtain updated budget property costs data for the required property
Output	• Cost estimates based on functional design for corridors • Cost estimate based on preliminary design of recommended alignment

Name of Study	Preliminary Operations and Maintenance Cost Estimate
Objective	• Develop an Indicative Cost Estimate for operations and maintenance for the comparison of alternative alignments • Develop a Substantive Cost Estimate for the operation and maintenance for the alignment carried forward to preliminary design (medium level of precision)
Inputs	Functional designs for alignments Projected traffic volumes for each alignment Preliminary design (horizontal and vertical alignments, grading and cross-section, related infrastructure such as lighting, SWM facilities) Preliminary Construction Cost estimates for the Preliminary General Arrangement Drawings for Bridges and Approaches
Scope and Methodology	For each corridor: • Determine lifespan of project • Determine necessary inspection work based upon type and frequency of inspection for project lifespan • Define operations and maintenance work and work frequency for project lifespan.

	Work includes repair, rehabilitation, reconstruction, cleaning, snow clearing, painting, and landscaping. They apply to the following road and bridge elements: o Roadway components: pavement, sidewalk, stormwater and drainage systems, lighting, signalling and security equipment; guide railings, hand rails and fences, right of ways; o Bridge structural components: joints and bearing elements; concrete components, underwater piers and foundations, structural steel, deck. • Obtain cost data from various Agencies for above similar works • Employ cost estimate in comparison of alternative alignments For the selected alignment: • Refine cost estimate for operation and maintenance costs for various project elements of the selected alignment
Output	• Cost estimates for operations and maintenance works over lifespan based on functional design for alternative alignments • Cost estimates for operations and maintenance works over life span based on preliminary design of recommended alignment

Name of Study	**Hydrotechnical Study - including hydrology, hydraulics, drainage and stormwater management for the Ottawa River crossing and span/approach drainage to nearby watercourses.**
Objective	• Determine the differences between the corridors with regard to hydrotechnical issues • Complete the hydrotechnical elements of the preliminary design for the selected corridor
Inputs	Site Study Areas Functional designs for all alternative alignments within each corridor Ottawa River hydraulic model – from current Floodplain Mapping Hydrotechnical Models for Green's Creek and Blanche River Preliminary design (horizontal and vertical alignments) Preliminary General Arrangement Drawings for Bridge and Approaches
Scope and Methodology	For each corridor: • Identify the watercourses where hydrotechnical elements should be considered • Assess the differences between the alternative alignments with respect to impacts on water levels and water quality incorporating the following areas of investigation o Watercourse hydrology (Green's Creek, Blanche River, Ottawa River) o Roadway drainage (existing and new storm drainage systems, areas of rural drainage for costing purposes) o Stormwater management (availability of suitable areas to construct a stormwater management facility and the area that would be treatable for both water quality and quantity) o Functional bridge openings (preliminary requirements for span lengths for major watercourses for costing purposes). o Impacts on the Gatineau water treatment plant 0.6 km downstream from corridor 5. o Impacts on wastewater treatment plants (one in Ottawa and one in Gatineau 1 km upstream from corridor 6). For the selected corridor • Assess the impact of the proposed pier spacing and size on ice jam potential, water levels, and scour potential in the Ottawa River using the hydraulic model of the river • Undertake modelling to determine minimum opening for bridges and major culverts based on hydrologic requirements in consultation with roadway and structural teams • Develop the preliminary design including: o Storm drainage systems for arterials with urban cross-sections o Stormwater management facilities (and property requirements)
Output	• Functional design for drainage, stormwater management and bridge span requirements for each corridor • Comparison of corridors with regard to hydrotechnical issues

	• Preliminary design for drainage (including approaches), stormwater management and bridge span/pier configuration

Name of Study	**Development of Functional Designs**
Objective	Generate optimized alignments within the corridors for comparison purposes
Inputs	Digital base mapping with property fabric Satellite images GIS database Phase 1 alignments Geotechnical and foundation investigations
Scope and Methodology	For each of the Site Study Areas under consideration: • Update base mapping from field review • Assemble photo log of corridors • Identify and note on base mapping constraints resulting from features of the natural environment and the community • List community priorities obtained through consultation • Develop design criteria • With consideration for alignments from Phase 1 and input from consultation, develop other alignments with suitable design standards o Horizontal alignment and vertical profile in accordance with geometric design standards for the chosen design speed o Typical sections for various classes of roads showing standard dimensions for lanes, shoulders, sidewalks and locations of medians o Cross-sections at critical locations o Structure lengths o Typical intersection designs o Interchange ramp configurations o Areas available for landscaping o Property requirements and utility impacts • Check critical locations to assess feasibility and potential impacts o Alignments within corridor 5 to consider aerial zoning restrictions as set out in Transport Canada TP312 regulations, or mitigation measures resulting from Aviation Impacts study. • Refine alignments to minimize potential impacts
Output	• Alternative alignments within the Site Study Areas for each of the 3 corridors to a functional level of detail, suitable for the comparative analysis. Drawings will generally consist of plans, profiles and cross-sections. Alternative alignments will be developed and refined iteratively during the progress of the study as needed to address potential impacts that have been identified.

Name of Study	**Development of Preliminary Design**
Objective	Complete a preliminary design for the recommended corridor
Inputs	Top alignment of functional design that was carried forward Proposed mitigation measures – input from agencies and public stakeholders Digital base mapping with property fabric Satellite images GIS database
Scope and Methodology	For the recommended alignment: • Review and confirm design criteria • With consideration for the recommended alignment and input from consultation, complete that preliminary design including: o Refine functional design of horizontal alignment and vertical profile o Typical sections for various classes of roads showing standard dimensions for lanes, shoulders, sidewalks and medians where appropriate including traffic barriers if needed. Show any specialized lanes included in the design,

	such as High Occupancy Vehicle (HOV) lanes o Grading cross-sections throughout with a focus on areas of significant cut or fill and near right-of-way boundaries to show the extent of the possible construction o Right-of-way (property) limits o Structural Preliminary General Arrangement drawings showing piers, abutments, span arrangement(s), profile, clearances and cross-section o Intersection designs that consider design vehicles and transit where appropriate o Interchange ramp configurations o Utility relocations, municipal services, surface drainage and stormwater management o Staging concept for construction and identification of traffic management measures such as the need for detours or overbuilding to facilitate traffic during construction o Landscaping concepts and locations o Location and dimensions of noise walls and retaining walls o Locations needing roadway illumination and traffic control signals
Output	• The preliminary design of the recommended alignment will be completed during this phase of the study. Drawings will consist of plans, profiles, cross-sections, elevations, details and perspectives. Other presentation formats will be determined in consultation with the Study Team and Stakeholders.

Name of Study	**Geotechnical Investigation**
Objective	• Determine any differences between the alternatives with consideration for the geotechnical conditions within the Site Study Areas • Develop a field plan for acceptance by the Study Partners • Develop geotechnical criteria for the preliminary design of the recommended alignment
Inputs	Site Study Areas - distinguishing between new roadways and roadways to be rehabilitated Functional designs for alignments Existing information on sub-surface conditions within the Site Study Areas from previous geotechnical investigations and reference material, including geological maps, the overburden information (type and thickness of soil cover), depth to bedrock, groundwater level, information on possible sources of construction materials on both shores (Ontario and Quebec) Preliminary design (horizontal and vertical alignments)
Scope and Methodology	For each corridor: • Assemble and review existing geotechnical data and information, including all data from existing sources such as maps, previous reports, visual observations in the area, etc. • Identify areas of slope stability issues for the whole corridor, including alignments through areas such as Green's Creek and Ottawa River. • Conduct field review to identify pavement design conditions along corridor. • For the road segments (not including bridge or bridge approaches), identify soils that need greater pavement structure depth or special treatments. • Suggest mitigation measures to minimize impacts for each corridor. For the comparison, consider that geotechnical design choices will have different degrees of impacts (natural environmental, nuisance, noise, dust, etc.). • Assess the differences between the corridors with regard to geotechnical issues For the selected corridor: • Undertake field review including boreholes for preliminary design level of effort (40 at about 5 m average depth estimated). These boreholes will cover the land portion of the corridor and should penetrate the weak soil layers (clay or soft silts/clays). In situ tests (vane shear test in cohesive soils and SPT in cohesionless soils should be carried out),soil sampling and laboratory tests are also needed. Develop a preliminary pavement design/pavement rehabilitation design for the corridor

	roadways ○
Output	• Comparison of corridors with regard to geotechnical issues • Updated geotechnical requirements for preliminary design of selected alignment for pavements, drainage and stormwater management

Name of Study	**Foundations Investigation**
Objective	• Determine any differences between the alternatives with consideration for the foundation conditions within the Site Study Areas • Develop a plan for field work for acceptance by the Study Partners • Develop preliminary designs for the foundations required along the recommended alignment
Inputs	Site Study Areas Functional designs for alignments Existing information on sub-surface conditions within the Site Study Areas from geotechnical and foundation investigations and reference material, including Geological maps, overburden information (type and thickness of soil cover), depth to bedrock, groundwater level, bathymetry of the river at the bridge locations, site seismicity, information on possible sources of construction materials on both shores (Ontario and Quebec). Preliminary design (horizontal and vertical alignments)
Scope and Methodology	For each corridor: • Assemble and review existing foundations data and information • Identify areas potential embankment foundation issues following a site visit by a geologist/geotechnical engineer and consultation of the existing geotechnical information. This issue is particularly critical for all bridges and in the marshy area of Corridor 7 • Undertake field review • For the bridge foundation consider the following information: ○ Expected thickness of overburden (according to the GOLDER Report, November 14, 2007 and National Geologic Commission maps - 2003) are as follows: about 30 m on both shores for Corridor 5, about 30 m on the south shore and about 15 m on the north shore of Corridor 6, and 40-45 m on the south shore and 25-30 m on the north shore for Corridor 7. • Identify constraints and cost implications of findings • Provide advice to the engineering team with respect to alignments and corridors. Suggest mitigation measures to minimize impacts • Assess the differences between the corridors with regard to foundation issues For the selected corridor: • Based on work completed to date and the location of the selected alignment, develop a work plan for geotechnical field investigations, including geophysical techniques for approval by the Study Partners. Provide a rationale for the proposed investigation, including milestones where decision on further work should be made. The following discussion identifies current assumptions for the field work. • Conduct field investigation along recommended alignment including boreholes, soundings, and geophysical investigations. • The selection of the geophysical methods to be used and the analysis of geophysical results must be undertaken by a recognized expert in this field. • The plan for boreholes must be designed to complement the proposed geophysical program and the expected site conditions. The boreholes for the bridge, the abutments and the approach fill should penetrate completely the overburden and a minimum of 5 m into the bedrock (10 boreholes of 35 – 40 m depths are likely required). In situ tests (vane shear test in cohesive soils and SPT in cohesionless soils should be carried out), soil sampling and laboratory tests are also needed. More specialized soundings may be needed depending on the findings of the initial campaign. This may include piezocone soundings, pressuremeter tests and more specialized laboratory tests (triaxial tests, consolidation tests, etc.).The investigation should take into account the risk of liquefaction of the soft sand layer and the

	presence of a fault in the area north of the river (according to the information contained in the GOLDER report, November 14, 2007)
	• Make recommendations for the foundations for major structures including the bridge over the Ottawa River and other watercourses. Include mitigation measures for scour protection for the bridge foundation (piles, caissons), and foundation treatment for the bridge approaches to eliminate risk of liquefaction;
	• Develop a preliminary design for mitigation of:
	  ○ slope stability issues
	  ○ foundation treatment to take into account possible large settlements of clayey layers.
	• Provide foundation costing recommendations to engineering team

Output	• Functional design for structure and embankment foundations for each corridor • Comparison of corridors with regard to foundation issues • Draft and Final Foundation Investigation Report and Foundation Preliminary Design Report • Preliminary design for structure and embankment foundations for the recommended alignment

Appendix C

The Community Value Plan Process

Community Value Plan Overview

The intent of the Community Value Plan (CVP) process is to identify and understand cultural, social, historical and/or environmental values or concerns of residents from the communities adjacent to and in close proximity to the three proposed interprovincial crossings locations.

A 'community' is defined as a group of people who share a common social and/or economic interest and who live in close proximity to one another within a larger society.

'Corridor Communities' are those that are located within or adjacent to one of the three proposed corridors and that stand to be directly impacted by issues such as disruption due to the bridge construction, implications on traffic, and the potential loss of greenspace or other local features.

For the purpose of this process, a 'community value' is defined as a shared concept relating to community identity or character that influences the decision of individuals to move to or remain in a particular community.

Community Value Plans provide input into the Phase 2B Study Design in the following ways:

1. By enabling communities to be in ongoing dialogue with the Project Team in various consultation formats that will allow them to discuss, comment, and provide input into the project in terms of their unique proximity to the proposed bridge corridors.
2. To assist in the decision-making around the finalization of the factors and sub-factors, and to propose a weighting formula of factors and sub-factors that is representative of the CVP's member communities
3. As an information 'lens' for the technical team as they develop the Functional and Preliminary Designs of the three corridors by providing a thorough understanding of the corridor communities.
4. By assisting the 2B consultant identify features that merit further analysis as part of the Community Impact Study.
5. As a means to assess the impacts of the identified corridors on the daily life and character of adjacent communities.
6. To help identify mitigation and enhancement measures for the selected alignment that promotes community values and cohesion.

Six Corridor Community Consultation Groups (CCG's) will participate in the CVP process. The process to identify the six CCG groups includes the following:

- Corridor Community Consultation Groups will be established within each province to create a total of six Corridor Community Consultation Groups (three on each side of the river) and six Community Value Plans. Community Associations and other stakeholder groups will be identified from within the geographical limits of each of the three proposed corridors. Individual Community Consultation Groups identified in Phase 2A will be included in the appropriate corridor.
- During Round 1 of consultation each of the six Corridor Community Consultation Groups will participate in a process that will enable the creation of individual Community Value Plans (activities defined below). This includes the identification of community facilities (e.g. schools), community open or greenspaces, and businesses, as well as the travel patterns that exist to carry out day-to-day living in the particular community.

- Upon Decision 1 the Corridor Community Consultation Groups in the retained corridor will develop a Mitigation Measures Plan in conjunction with their finalized CVP.

Community Value Plan Activities

The CVP process will contribute to various facets of the Study Design and be the key contribution to the Community Impact Study outlined in Appendix 'A'.

The following outlines the CVP process throughout 2B of the Interprovincial Crossing Study:

Round 1 - Priorities and Values

Each Corridor Community Consultation Group will be invited to participate in the following:

- Meeting #1 (may be combined with Meeting #2 if deemed appropriate)
  - Introduction Meeting including;
    - Review and input on the project overall
    - Review and provide feedback on evaluation factors and sub-factors
    - Overview of the CVP process, its objectives and process
    - Meet and Greet opportunity for all participating Community Organizations

- Meeting #2
  - Community Value Plan Workshop including;
    - In-depth Community Value Identification process (e.g. Small Group discussions, plenary sessions, etc.)
    - Development of the key Community Values

- Meeting #3
  - Community Value Plan Validation Session including;
    - Review of the Draft Community Value Plan
    - Finalization of Community Value Plan

In addition to the meetings outlined above, online, email and telephone conversations may occur throughout Round 1 as required.

Round 2 - Corridor-specific Input

Each Corridor Community Consultation Group will be invited to participate in the following:

- Meeting #1
  - Review of how Community Value Plans led to proposed alignments and mitigation measures for a specific corridor
  - Review the functional designs and the reaction to proposed mitigation measures (specifically, validation and refinement of proposed measures; discussion of how the CVPs influenced the process and what assumptions were made). The objective will be to further align the design with the communities' values.
  - Propose a weighting scheme representative of the CVP's member communities.
  - Working tables will include maps and all materials necessary to enable hands-on feedback on the various alternatives.

In addition to the meetings outlined above, online, email and telephone conversations may occur throughout Round 2 as required.

Round 3 - Ranked Corridor Input

Each Corridor Community Consultation Group will be invited to participate in the following:

- Meeting #1
    - Feedback on top ranked corridor, with a focus on community specific mitigation measures and related issues/concerns

In addition to the meetings outlined above online, email and telephone conversations may occur throughout Round 3 as required.

Round 4 – Review of EA Study Report (Post Decision 1)

Each Corridor Community Consultation Group in the retained corridor will be invited to participate in the following:

- Meeting #1
    - Mitigation Measures Workshop including;
        - Review and comments on EA Study Report
        - Feedback on recommended corridor and preliminary designs
        - Development of Mitigation Measures Program (as guided by Community Value Plans)

In addition to the meetings outlined above, online, email and telephone conversations may occur throughout Round 4 as required.

Appendix D

Terms of Reference for the Public Consultation Group and the Community Consultation Group

Public Consultation Group (PCG) Terms of Reference

Introduction

The Public Consultation Group (PCG), a group of stakeholders representing various regional interests, was established during Phase 1 of the Study to provide comment on the Study assumptions, alternatives, evaluation factors, evaluation methodology, conclusions and recommendations.

The PCG, which is made up of community associations and interest groups, provides a forum for a two-way dialogue between the member organizations and the Study Team. PCG meetings are scheduled at key points during the Study to facilitate the understanding of issues and for committee members to provide feedback.

Membership

PCG membership has been organized into two sections; Working Members and Observers.

Role and Responsibility of the PCG Working Members:

- Ensuring their organization is represented at each PCG meeting
- Assuring two-way dialogue between the Consultant and the organization
- Providing input on behalf of their organization
- Collecting and distributing information to their organization, and helping to promote consultation activities
- Becoming informed of the Study and its progress.

Role and Responsibility of the PCG Observers:

- Attending PCG meetings to observe - any contribution must be made through a PCG Working Member
- Collecting and distributing information to their organization, and helping to promote consultation activities
- Becoming informed of the Study and its progress.

Administration

- The PCG will be chaired by the Project Manager for the Consultant Team
- The Chair has the discretion to determine the language in which the meetings will be held, taking into consideration attendance and participant wishes
- The Chair will be responsible for meeting notifications, meeting agendas and meeting notes. Notes will be circulated for review and approval following each meeting
- To ensure that meetings are productive, collaborative and respect meeting objectives, they will generally not be open to the broader public or media

Community Consultation Groups (CCG) Terms of Reference

Introduction

The Community Consultation Group concept will be piloted at Phase 2A to determine its effectiveness and appropriateness for Phase 2B. The premise of the CCGs is to create a mechanism by which the Study Team can be proactive in dialoguing directly with a specific community.

Community Consultation Groups are defined as resident associations representing communities adjacent to or in close proximity to the three corridors. These groups agree to work with the Study Team in organizing, recruiting and hosting a consultation session with their membership. They further commit (in writing) to have an open and meaningful dialogue with representatives of the Study Team about the Study, in a collaborative, productive and constructive manner.

The Phase 2A Workplan outlines a total of ten Community Organization Events. Five meetings will be held during Step 2 of the Consultation Program (in February), with an additional five follow-up meetings held during Step 3 (in April).

Selection of Groups

The following criteria will be used to select 'host' Community Consultation Groups:

- A demonstrated interest in the Study and its outcomes
- A potential to be directly affected by one of the three crossings under consideration
- A willingness to organize, promote and host a meeting for a specific membership or constituency
- A commitment to follow a pre-determined meeting format
- A written commitment to work in a collaborative and productive fashion with the Study Team representatives at the meeting.

Administration

- Meetings will be co-chaired by a member of the hosting organization that can demonstrate they speak on behalf of their members (e.g., a community association president) and a representative of the Study Team
- Promotion and logistics of the meeting will be the responsibility of the host organization
- Minutes will be taken by a member of the Consulting Team
- Meetings will be held in the language that is customary to the host organization
- Minutes will be distributed to the co-chairs for review and distribution
- To ensure that meetings are productive, collaborative and respect meeting objectives, they will generally not be open to the broader public or media.